**CLAIMS**:

1.    A method of port configuration in a host comprising:

determining if a designated port supports a multi-link mode operation for data transfers,

via one or more links; and

if the designated port supports the multi-link mode operation, configuring and training the

designated port to serve as one of a single link capable port which transfer data via a single link,

a multiple link capable port which transfers data via respective multiple links, and multiple of

single link ports which transfer data via a respective single link.


2.    The method as claimed in claim 1, wherein the multi-link mode operation

corresponds to a 4x mode operation where 4x indicates four (4) physical links between respective

ports.


3.    The method as claimed in claim 2, wherein the single link capable port

corresponds to a 1x capable port which transfer data via a single 1x link, the multiple link

capable port corresponds to a 4x capable port which transfers data via respective 4x links, and

the multiple of single link ports correspond to four (4) independent 1x ports which transfer data

via a respective single 1x link.

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1     4.     The method as claimed in claim 3, wherein each link is trained independently to

2     enable the designated port to serve as the 1x capable port, the 4x capable port, or the four (4)

3     independent 1x ports.

1     5.     The method as claimed in claim 4, wherein the designated port is configured for

2     the multi-link mode operation using a PortInfo Attribute in accordance with the *"InfiniBand$^{TM}$*

3     *Architecture Specification"*.

6.     The method as claimed in claim 3, wherein the data transferred is appended with a

Variant Cyclic Redundancy Code (VCRC) at the end of each packet..

7.     The method as claimed in claim 6, wherein the VCRC is generated for one packet

at a time when the designated port is configured as the 1x capable port or the 4x capable port, or

3     alternatively, for four (4) packets at a time when the designated port is configured as four (4)

4     independent 1x ports.

1     8.     A host node comprising:

2     at least one port to support data transfers, via one or more links; and

3     a port configuration mechanism to configure and train the port to serve as a 1x capable

4     port which transfer data via a 1x link, a 4x capable port which transfers data via respective 4x

links, or four (4) independent 1x ports which transfer data via a respective 1x link.

9.      The host node as claimed in claim 8, wherein the port is configured for a multi-

link mode operation using a PortInfo Attribute in accordance with the *"InfiniBand*$^{TM}$ *Architecture*

*Specification"*.

10.     The host node as claimed in claim 9, wherein the port configuration mechanism

further comprises a Shared Variant Cyclic Redundancy Code (VCRC) Generation/Checking

Logic arranged to generate and check the VCRC for every data packet.

11.     The host node as claimed in claim 10, wherein the VCRC is generated for one

data packet at a time when the port is configured as one 1x capable port or as one 4x capable

port.

12.     The host node as claimed in claim 11, wherein the VCRC is generated for four (4)

data packets at a time when the port is configured as four (4) independent 1x capable ports.

13.     The host node as claimed in claim 12, wherein the Shared VCRC

Generation/Checking Logic comprises:

a 64 bit CRC Generation Block arranged to compute the VCRC  for most of the data

1   packet when data is transferred 8 bytes at a time;

2   a 32 bit CRC Generation Block arranged to compute the VCRC for the last 4 bytes of the

3   data packet if the data packet has an odd number of 4 byte words, and to compute the Link CRC

4   for link packets;

5   a first Mux arranged to select if a 64 bit or a 32 bit Generated CRC is used in accordance

6   with a first selection signal;

7   a plurality of CRC Registers arranged to hold the CRC State for Port designations; and

8   a second Mux arranged to select an output from any one of the CRC Registers for CRC

feedback, via a CRC feedback bus in accordance with a second selection signal.


14.   The host node as claimed in claim 8, wherein the port configuration mechanism

further comprises four independent Link Training Logic Blocks arranged to train each link

independently to enable the port to serve as the 1x capable port, the 4x capable port, or the four

(4) independent 1x ports.


1   15.   The host node as claimed in claim 14, wherein, when the port is configured as one

2   1x capable port or one 4x capable port, only one Link Training Logic Block is enabled and the

3   remainder Logic Blocks are disabled.


1   16.   The host node as claimed in claim 14, wherein, when the port is configured as

four (4) independent 1x capable ports, all four Link Training Logic Blocks are enabled and each

1x capable port operates independently from each other.


17.    A computer readable medium comprising instructions that, when executed by a

host node in a switched fabric including end nodes and switches interconnected via one or more

links, cause the host node to support multiple port configurations on the host node by performing

the steps of:

determining if a designated port in the host node supports a multi-link mode operation for

data transfers, via one or more links; and

if the designated port supports the multi-link mode operation, configuring and training the

designated port to serve as one of a single link capable port which transfer data via a single link,

a multiple link capable port which transfers data via respective multiple links, and multiple of

single link ports which transfer data via a respective single link.


18.    The computer readable medium as claimed in claim 17, wherein the single link

capable port corresponds to a 1x capable port which transfer data via a single 1x link, the

multiple link capable port corresponds to a 4x capable port which transfers data via respective 4x

links, and the multiple of single link ports correspond to four (4) independent 1x ports which

transfer data via a respective single 1x link.

19.     The computer readable medium as claimed in claim 17, wherein each link is

trained independently to enable the designated port to serve as the 1x capable port, the 4x capable

port, or the four (4) independent 1x ports.


20.     The computer readable medium as claimed in claim 17, wherein the designated

port is configured for the multi-link mode operation using a PortInfo Attribute in accordance

with the *"InfiniBand™ Architecture Specification"*.